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Claims:

1. A stereo photographic system comprising:

a detecting device capable of adjusting the distance feeling of a three-dimensional image while viewing the pictures of films photographed by using a stereo camera;

position indicating means for forming position indicators such as indexes, protuberances or similar means under or over right and left windows of a stereo slide mount; wherein

the detecting device includes right and left optical systems each constituted by a projecting lens, a focusing plate having a width smaller than the width of the projected picture and having a collimation pattern, and an eyepiece, and further includes a mechanism for adjusting the gap between the right and left

CLAIMS

1. A method of estimating the effective bandwidth requirement of a traffic flow at a node in a communications network with an associated database of relationships, the database having been provided by:-

identifying a type of traffic flow off-line;

estimating a mean rate of traffic flow of the identified type of traffic flow;

estimating the effective bandwidth requirement of this flow;

defining a relationship between the effective bandwidth requirement and the mean rate of traffic flow for this identified type of traffic flow; and

storing in the database of relationships, the relationship for different identifiable types of traffic flows, and

in which the method comprises:

(a) sampling the traffic flow on-line at the node;

(b) identifying the type of traffic flow on-line at the node;

(c) estimating the mean rate of the traffic flow on-line;

(d) comparing the identified type of the traffic flow on-line to a similar identified type of traffic flow off-line to obtain a relationship from the database of relationships; and

(e) estimating an effective bandwidth requirement of the traffic flow on-line at the node from the estimated mean rate of the

traffic flow and the relationship obtained from the database of relationships.

2. A method of estimating the effective bandwidth requirement at a node in a communications network according to claim 1, in which the traffic flow is a traffic aggregate of a group of traffic flows and the traffic aggregate is dealt with as if it were the one cohesive traffic flow.

3. A method of estimating the effective bandwidth requirement at a node according to claim 1, in which the method further comprises the step of:-

identifying a traffic aggregate on-line which represents traffic produced by a group of flows;

identifying each flow of traffic forming the traffic aggregate;

estimating the mean rate of traffic flow individually on-line for the number of identifiable types of traffic flows forming the traffic aggregate;

individually comparing each type of identified traffic flow on-line to a similar type of traffic flow off-line to obtain a relationship from the database of relationships for each type of identified traffic flow on-line; and

estimating the effective bandwidth requirement for the number of identifiable types of traffic flow forming the traffic aggregate to provide the effective bandwidth requirement of the traffic aggregate at the node.

4. A method of estimating the effective bandwidth requirement according to claim 1 wherein the method further comprises the step of:-

updating the database of relationships with a relationship from the

estimated effective bandwidth requirement and the mean flow rate of the traffic flow on-line.

5. A method of estimating the effective bandwidth requirement according to claim 1 in which the step of obtaining the effective bandwidth requirement off-line takes account of quality of service requirements in the communications network.

6. A method of estimating the effective bandwidth requirement according to claim 1 in which the steps of obtaining the effective bandwidth requirement off-line incorporates one of a loss ratio and delay parameter in the communications network.

7. A method of estimating the effective bandwidth requirement according to claim 1, in which the step of calculating the relationship between the effective bandwidth requirement and the mean rate of traffic flow is calculated off-line over a number of time intervals.

8. A method of estimating the effective bandwidth requirement according to claim 1, wherein the step of measuring the mean rate of traffic flow comprises measuring the number of packets of information at the node on-line.

9. A method of estimating the effective bandwidth requirement according to claim 1, wherein the relationship between the effective bandwidth requirement and the mean rate of traffic flow is calculated as the ratio of the effective bandwidth requirement with respect to the mean rate of the traffic flow.

10. A method of estimating the effective bandwidth requirement according to claim 1, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (C_i + \ldots + C_N)/N$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows, and

C = ratio for the N flows.

11. A method of estimating the effective bandwidth requirement according to claim 1, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (T_i C_i + \ldots + T_N C_N) / (T_i + \ldots + T_N)$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows,

T_i = time duration of a particular flow, and

N = total number of flows.

12. A method of estimating the effective bandwidth requirement according to claim 1, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (T_i E_i + \ldots + T_N E_N) / (T_i m_i + \ldots + T_N m_N).$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows,

T_i = time duration of a traffic flow,

E_i = estimated effective bandwidth requirement of a traffic flow,

m_i = measured mean rate of a traffic flow, and

C = ratio for N traffic flows.

13. A method of estimating the effective bandwidth requirement according to claim 1, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein
m = measured mean rate of traffic flow,
C = typical ratio for one traffic flow,
B = bandwidth requirement to maintain quality of service,
P = loss ratio, and
N = Number of traffic flows.

14. A method of estimating the effective bandwidth requirement according to claim 1, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein
m = measured mean rate of traffic flow
C = typical ratio for one traffic flow
B = bandwidth requirement to maintain quality of

service
P = loss ratio
N = Number of traffic flows

and in which the effective bandwidth requirement is obtained by estimating a ratio D off-line for a number of traffic flows represented by:

$$D = \frac{B}{mn}$$

where B = bandwidth requirement to maintain quality of service
m = mean rate
n = maximum number of flows allowed at the node.

15. A method of estimating the effective bandwidth requirement according to claim 1, in which some or all of steps (b) to (e) are carried out outside the jurisdiction.

16. A method of estimating the effective bandwidth requirement according to claim 1, in which one or more of steps (a), (b) and (c) are carried out outside the jurisdiction.

17. A computer program comprising program instructions for causing a computer to perform according to claim 1.

18. A computer program comprising program instructions embodied on a recordable medium for causing a computer to perform the method according to claim 1.

19. A computer program comprising program instruction embodied in a computer memory for causing a computer to perform the method according to claim 1.

20. A computer program comprising program instruction embodied in a read-only memory for causing a computer to perform the method according to claim 1.

21. A computer program comprising program instructions carried on an electrical signal carrier for causing a computer to perform the method according to claim 1.

22. A computer program comprising program instructions carried on an optical signal carrier for causing a computer to perform the method according to claim 1.

23. A method of estimating the effective bandwidth requirement of a traffic flow at a node in a communications network with an associated database of relationships, the database having been provided by:-

identifying a type of aggregate traffic flow comprising a plurality of individual traffic flows off-line;

estimating a mean rate of traffic flow of the identified type of aggregate traffic flow;

estimating the effective bandwidth requirement of this flow;

defining a relationship between the effective bandwidth requirement and the mean rate of traffic flow for this identified type of aggregate traffic flow; and

storing in the database of relationships, the relationship for different identifiable types of aggregate traffic flows, and

in which the method comprises:

(a) sampling the aggregate traffic flow on-line;

(b) identifying the type of the aggregate traffic flow on-line at the node;

(c) measuring the mean rate of the aggregate traffic flow on-line;

(d) comparing the identified type of the aggregate traffic flow on-line to a similar identified type of aggregate traffic flow off-line to obtain a relationship from the database of relationships; and

(e) estimating an effective bandwidth requirement of the aggregate traffic flow on-line at the node from the estimated mean rate of the traffic flow and the relationship obtained from the database of relationships.

24. A method of estimating the effective bandwidth requirement at a node according to claim 23, in which the method further comprises the step of:-

identifying a traffic aggregate on-line which represents traffic produced by a group of traffic aggregates;

identifying each flow of traffic forming one of the traffic aggregates;

estimating the mean rate of aggregate traffic flow individually on-line for the number of identifiable types of a traffic flows forming the traffic aggregate;

individually comparing each type of identified aggregate traffic flow on-line to a similar type of traffic flow off-line to obtain a relationship from the database of relationships for each type of identified aggregate traffic flow on-line; and

estimating the effective bandwidth requirement on-line at the node for the number of identifiable types of traffic flow forming the traffic aggregate to provide the effective bandwidth requirement of the traffic aggregate.

25. A method of estimating the effective bandwidth requirement according to claim 23, wherein the method further comprises the step of:-

updating the database of relationships with a relationship from the estimated effective bandwidth requirement and the mean rate on-line value.

26. A method of estimating the effective bandwidth requirement according to claim 23, in which the step of calculating the relationship between the effective bandwidth requirement and the mean rate of aggregate traffic flow is calculated off-line over a number of time intervals.

27. A method of estimating the effective bandwidth requirement according to claim 23, wherein the step of measuring the mean rate of aggregate traffic flow comprises measuring the number of packets of information at the node on-line.

28. A method of estimating the effective bandwidth requirement according to claim 23, wherein the relationship between the effective bandwidth requirement and the mean rate of aggregate traffic flow is calculated as the ratio of the effective bandwidth requirement with respect to the mean rate of the aggregate traffic flow.

29. A method of estimating the effective bandwidth requirement according to claim 23, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the aggregate traffic for a number of aggregate traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (C_1 + \ldots + C_N)/N$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of aggregate traffic flow for the i-th flow measured off-line,

N = Number of different aggregate traffic flows, and

C = ratio for the N flows.

30. A method of estimating the effective bandwidth requirement according to claim 23, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the aggregate traffic for a number of aggregate traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = I \ldots\ldots N$$

and in which

$$C = (T_i C_i + \ldots + T_N C_N) / (T_i + \ldots + T_N)$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of aggregate traffic flow for the i-th flow measured off-line,

N = Number of different aggregate traffic flows,

T_i = time duration of a particular flow, and

N = total number of flows.

31. A method of estimating the effective bandwidth requirement according to claim 23, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the aggregate traffic for a number of aggregate traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (T_1 E_1 + \ldots + T_N E_N) / (T_1 m_1 + \ldots + T_N m_N).$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of aggregate traffic flow for the i-th flow measured off-line,

N = Number of different aggregate traffic flows,

T_i = time duration of a aggregate traffic flow,

E_i = estimated effective bandwidth requirement of a aggregate traffic

flow,

m_i = measured mean rate of a aggregate traffic flow, and

C = ratio for N aggregate traffic flows.

32. A method of estimating the effective bandwidth requirement according to claim 23, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein m = measured mean rate of aggregate traffic flow,
C = typical ratio for one aggregate traffic flow,
B = bandwidth requirement to maintain quality of service,
P = loss ratio, and
N = Number of aggregate traffic flows.

33. A method of estimating the effective bandwidth requirement according to claim 23, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein m = measured mean rate of aggregate traffic flow
C = typical ratio for one aggregate traffic flow
B = bandwidth requirement to maintain quality of

service

P = loss ratio

N = Number of aggregate traffic flows

and in which the effective bandwidth requirement is obtained by estimating a ratio D off-line for a number of aggregate traffic flows represented by:

$$D = \frac{B}{mn}$$

where B = bandwidth requirement to maintain quality of service

m = mean rate

n = maximum number of flows allowed at the node.

34. A method of estimating the effective bandwidth requirement according to claim 23, in which some or all of steps (b) to (e) are carried out outside the jurisdiction.

35. A method of estimating the effective bandwidth requirement according to claim 23, in which one or more of steps (a), (b) and (c) are carried out outside the jurisdiction.

36. A computer program comprising program instructions for causing a computer to perform according to claim 23.

37. A computer program comprising program instructions embodied on a recordable medium for causing a computer to perform the method according to claim 23.

38. A computer program comprising program instruction embodied in a computer memory for causing a computer to perform the method according to claim 23.

39. A computer program comprising program instruction embodied in a read-only memory for causing a computer to perform the method according to claim 23.

40. A computer program comprising program instructions carried on an electrical signal carrier for causing a computer to perform the method according to claim 23.

41. A computer program comprising program instructions carried on an optical signal carrier for causing a computer to perform the method according to claim 23.

42. A method of estimating the effective bandwidth requirement of a traffic flow at a node in a communications network comprising:-

identifying a type of traffic flow off-line;

estimating an effective bandwidth requirement and a mean rate of traffic flow of the identified type of traffic flow;

defining a relationship between the effective bandwidth requirement and the mean rate of traffic flow for the identified type of traffic flow;

storing in a database of relationships, the relationship for different identifiable types of traffic flows off-line;

identifying the type of the traffic flow on-line at the node;

measuring the mean rate of the traffic flow on-line;

comparing the identified type of the traffic flow on-line to a similar identified type of traffic flow off-line to obtain a relationship from the database of relationships; and

estimating an effective bandwidth requirement of the identified type of traffic flow on-line at the node from the mean rate of the traffic flow measured on-line and the relationship obtained from the database of

relationships for the similar identified type of traffic flow off-line.

43. A method of estimating the effective bandwidth requirement at a node in a communications network according to claim 42, in which the traffic flow is a traffic aggregate of a group of traffic flows and the traffic aggregate is dealt with as if it were the one cohesive traffic flow.

44. A method of estimating the effective bandwidth requirement at a node according to claim 42, in which the method further comprises the step of:-

identifying a traffic aggregate on-line which represents traffic produced by a group of flows;

identifying each flow of traffic forming the traffic aggregate;

estimating the mean rate of traffic flow individually on-line for the number of identifiable types of traffic flows forming the traffic aggregate;

individually comparing each type of identified traffic flow on-line to a similar type of traffic flow off-line to obtain a relationship from the database of relationships for each type of identified traffic flow on-line; and

estimating the effective bandwidth requirement on-line at the node for the number of identifiable types of traffic flow forming the traffic aggregate to provide the effective bandwidth requirement of the traffic aggregate.

45. A method of estimating the effective bandwidth requirement according to claim 42, wherein the method further comprises the step of:-

updating the database of relationships with a relationship from the estimated effective bandwidth requirement and the mean rate on-line

value.

46. A method of estimating the effective bandwidth requirement according to claim 42, wherein the step of measuring the mean rate of traffic flow comprises measuring the number of packets of information at the node on-line.

47. A method of estimating the effective bandwidth requirement according to claim 42, wherein the relationship between the effective bandwidth requirement and the mean rate of traffic flow is calculated as the ratio of the effective bandwidth requirement with respect to the mean rate of the traffic flow.

48. A method of estimating the effective bandwidth requirement according to claim 42, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (C_1 + \ldots + C_N)/N$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows, and

C = ratio for the N flows.

49. A method of estimating the effective bandwidth requirement according to claim 42, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = I \ldots\ldots N$$

and in which

$$C = (T_i C_i + \ldots + T_N C_N) / (T_i + \ldots + T_N)$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows,

T_i = time duration of a particular flow, and

N = total number of flows.

50. A method of estimating the effective bandwidth requirement according to claim 42, comprising estimating the effective bandwidth requirement off-line and estimating the mean rate off-line of a sample of the traffic for a number of traffic flows to obtain a relationship represented by:-

$$C_i = \frac{E_i}{m_i} \quad i = 1 \ldots\ldots N$$

and in which

$$C = (T_i E_i + \ldots + T_N E_N) / (T_i m_i + \ldots + T_N m_N).$$

where

C_i = ratio for the i-th flow,

E_i = Effective bandwidth requirement the for i-th flow measured off-line,

m_i = Mean rate of traffic flow for the i-th flow measured off-line,

N = Number of different traffic flows,

T_i = time duration of a traffic flow,

E_i = estimated effective bandwidth requirement of a traffic flow,

m_i = measured mean rate of a traffic flow, and

C = ratio for N traffic flows.

51. A method of estimating the effective bandwidth requirement according to claim 42, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein m = measured mean rate of traffic flow,
C = typical ratio for one traffic flow,
B = bandwidth requirement to maintain quality of service,
P = loss ratio, and
N = Number of traffic flows.

52. A method of estimating the effective bandwidth requirement according to claim 42, comprising the further step of:-

factoring the quality of service requirements into the estimation of bandwidth requirement by calculating the maximum number of flows to maintain quality of service requirements by:-

$$\text{Prob}\{mC_1 + \ldots + mC_N > B\} < P$$

wherein m = measured mean rate of traffic flow
C = typical ratio for one traffic flow
B = bandwidth requirement to maintain quality of service
P = loss ratio
N = Number of traffic flows

and in which the effective bandwidth requirement is obtained by estimating a ratio D off-line for a number of traffic flows represented by:

$$D = \frac{B}{mn}$$

where B = bandwidth requirement to maintain quality of service
m = mean rate
n = maximum number of flows allowed at the node.

53. A method of estimating the effective bandwidth requirement according to claim 42, in which some of the steps are carried out outside the jurisdiction.

54. A computer program comprising program instructions for causing a computer to perform the method according to claim 42.

55. A computer program comprising program instructions embodied on one of a recordable medium, embodied on a computer memory, embodied on a read-only memory, carried on an electrical signal carrier, and an optical signal carrier for causing a computer to perform one or more of the steps of the method according to claim 42.

56. A system for estimating the effectively bandwidth requirement at a node in a communications network comprising:

(a) at least one computer connected to the node;

(b) a database of relationships comprising, for a previously sampled traffic flow, an identifier for the traffic flow, an estimate of the mean rate of flow of said identified traffic flow, and an estimated effective bandwidth requirement for the said identified traffic flows, together with a measure of the relationship between the mean rate of flow and the effective bandwidth requirement;

(c) means for sampling traffic on-line at the node;

(d) means for allocating an identifier to the traffic on-line at the node;

(e) means for estimating the mean rate of flow of the traffic on-line;

(f) means for comparing the identifier of the traffic on-line with the identifiers in the database;

(g) means for identifying the closest stored identifier in the database with

that of the traffic on-line; and

(h) means for extracting the appropriate relationship from the database and estimating the effective bandwidth requirement of the traffic flow on-line.

57. A system according to claim 56, comprising means for dividing the traffic flow into a number of separate traffic flows and for handling each separate traffic flow independently to provide an effective bandwidth requirement for each separate traffic flow.

58. A system according to claim 56, comprising admission control means whereby some of the separate traffic flows, making up the traffic flow on-line at the node, may be rejected at the node if the estimated bandwidth requirement at the node exceeds the bandwidth requirement available at the node for the traffic.

59. A system for estimating the effective bandwidth requirement recited in claim 56, comprising means to measure the mean rate of traffic flow individually on-line for a number of identifiable types of traffic flows forming a traffic aggregate.

60. A system for estimating the effective bandwidth requirement as recited in claim 56, comprising means to estimate the effective bandwidth requirement on-line at the node for a number of identifiable types of traffic flow.

61. A system for estimating the effective bandwidth requirement as recited in claim 56, comprising means for updating the database of relationships with a relationship from the estimated effective bandwidth requirement and the estimated mean rate on-line value for future reference.

62. A computer programmed to provide some or all of the means according to claim 56.

63. A computer program loaded on a computer to provide some or all of the means according to claim 56.

64. A computer program comprising program instructions embodied on one of a recordable medium, embodied on a computer memory, embodied on a read-only memory, carried on an electrical signal carrier, and an optical signal carrier, which when loaded on a computer comprise some or all of the means according to claim 56.

65. A system for estimating the effectively bandwidth requirement at a node in a communications network comprising:

(a) at least one computer connected to the node;

(b) a database of relationships comprising, for a previously sampled traffic flow, an identifier for the traffic flow, an estimate of the mean rate of said identified traffic flow, and an estimated effective bandwidth requirement for the said identified traffic flows, together with a measure of the relationship between the mean rate of flow and the effective bandwidth requirement;

(c) means for sampling traffic on-line at the node;

(d) means for allocating an identifier to the traffic on-line at the node;

(e) means for estimating the mean rate of flow of the traffic on-line;

(f) means for comparing the identifier of the traffic on-line with the identifiers in the database;

(g) means for identifying the closest stored identifier in the database with that of the traffic on-line; and

(h) means for extracting the appropriate relationship from the database

and estimating the effective bandwidth requirement of the traffic flow on-line; and

(i) an admission control unit connected to the node providing means to control the traffic sent to the node.

66. A system according to claim 65, comprising means for dividing the traffic flow into a number of separate traffic flows and for handling each separate traffic flow independently to provide an effective bandwidth requirement for each separate traffic flow.

67. A system for estimating the effective bandwidth requirement as recited in claim 65, comprising means to estimate the effective bandwidth on-line at the node for a number of identifiable types of traffic flow.

68. A system for estimating the effective bandwidth requirement as recited in claim 65, comprising means for updating the database of relationships with a relationship from the estimated effective bandwidth requirement and the estimated mean rate on-line value for future reference.

69. A computer programmed to provide some or all of the means according to claim 65.

70. A computer program loaded on a computer to provide some or all of the means according to claim 65.

71. A computer program comprising program instructions embodied on one of a recordable medium, embodied on a computer memory, embodied on a read-only memory, carried on an electrical signal carrier, and an optical signal carrier, which when loaded on a computer comprise some or all of the means according to claim 65.